Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Advanced Television Systems	)	
and Their Impact Upon the	)	MM Docket No. 87-268
Existing Television Broadcast	)	
Service	)	

TO: The Commission

BROADCASTERS' PROPOSED ATV
ALLOTMENT/ASSIGNMENT APPROACH

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SUMMARY

The inauguration of digital advanced television ("ATV") services depends on the prompt adoption of a fair, efficient and service-maximizing allotment/assignment plan.

Existing broadcast licensees, the Commission has already concluded, will be initially responsible for upgrading to digital ATV. The premise of this conclusion which so decisively benefits the viewing public -- 98% of all Americans -- also serves to guide the design of the allotment/assignment process. This process should avoid viewer disenfranchisement. The new ATV channels should permit licensees to provide ATV service to their existing viewers while avoiding interference to existing NTSC service. This process should also maximize ATV service wherever possible, consistent with these other principles. Finally, the process should include mechanisms to evaluate and, where appropriate, accommodate suggested improvements, special market circumstances and proposed facility changes, both now and in the future.

The state-of-the-art computer model developed by the Broadcasters Caucus and endorsed by the undersigned broadcast organizations (the "Broadcasters"), which has been made available to the FCC's staff and used by the FCC Advisory Committee on Advanced Television Service, incorporates all appropriate new techniques for allotting/assigning channels. For example, the model considers the effect of terrain in

predicting station coverage and interference, the actual populations served, the opportunities for minimizing NTSC interference through collocation of ATV and NTSC stations, and other factors bearing on appropriate channel selection.

Thus the model, subject to appropriate adjustments, is the best tool for accomplishing the above objectives. It will create (1) a paired table, (2) that is site-specific and designates the height and power of the ATV facilities, (3) that necessarily uses both UHF channels and VHF channels as needed to replicate and minimize interference to the public's service, and (4) that maximizes the ATV coverage of smaller stations. To permit evaluation and improvement of these principles in a concrete setting, we are submitting a preliminary allotment/assignment table derived from the Broadcasters' model. Both the model and its output can and should be subject to adjustment.

In the future, after the Commission adopts an ATV allotment/assignment table, privately run assignment coordinating committees can and ought to use the Broadcasters' model, or some variation thereof, to evaluate proposed changes to the table. Thus the Broadcasters' approach will provide the flexibility to deal with changing circumstances both before and long after stations receive their ATV assignments.

We urge the Commission to issue a further rulemaking that takes these recommendations into account. Such a notice would elicit additional public comment on these issues which

are so critical to the effective and timely roll-out of digital ATV services to the American public.

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The promise of advanced television is great -- high definition pictures, wide screen display, improved sound, robust digital transmission, and flexibility for ancillary and supplemental services that allow the public access to a mix of these and other options. The Commission has recognized that the public would be well served by enabling its existing service to upgrade to ATV.[1/] It has also recognized that broadcasters need a second channel with which to accomplish this upgrading.[2/] While the wisdom of that decision continues to be indisputable, the Commission and industry face significant challenges in rolling out this new technology to the public. Not the least of these challenges is how to

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1/ That is why the Commission decided to define the pool of eligibles for the new ATV channels initially as those holding existing NTSC authorizations. Tentative Decision and Further Notice of Inquiry, 3 FCC Rcd. 6520, 6521 (1988) ("Second Inquiry").

2/ First Report and Order, 5 FCC Rcd. 5627, 5628 (1990).

squeeze twice as many stations into the spectrum currently allocated for television broadcasting to accommodate both existing NTSC stations and their new ATV counterparts without sacrificing NTSC service during the transition to ATV.

To meet this challenge and others, the Commission must:

- adopt such a table at the same time that it adopts ATV technical standards so that the broadcasting, manufacturing, and programming industries have the requisite incentives and tools to implement ATV;

- produce a table of allotments and assignments necessarily using VHF and UHF channels that (a) does not disenfranchise existing NTSC viewers by enabling stations to provide ATV coverage that is comparable to existing NTSC coverage and does not unduly interfere with that existing NTSC service on which the public and the viability of ATV depend and (b) provides for maximization of ATV coverage, especially for smaller stations (see infra at 10);

- adopt an allotment and assignment process[3/] that custom matches each NTSC station with the most appropriate ATV channel so as to minimize disruption during the complex and difficult transition to digital TV; and

- orchestrate a transition to the new table that allows for efficiency and satisfaction-enhancing

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3/ The "allotment" process specifies which channels may be used in what communities. The "assignment" process specifies which allotments may be used by which applicants. Broadcasters have melded the allotment and assignment processes into a single process to ensure that ATV channels are distributed with precision (thereby reducing interference and other undesirable effects) and efficiency (thereby bringing more and more suitable ATV service to the consumers as soon as possible). We believe that this methodology will optimize the environment in which NTSC and ATV services will, necessarily, coexist.

adjustments to the table, both before and after its adoption, both system-wide and ad-hoc.[4/]

The proposal of the undersigned broadcast organizations (the "Broadcasters")[5/] is an important step toward achieving these goals. Attachment A sets out in lay terms how the Broadcasters' computerized allotment/assignment model works and the technical assumptions on which it is based. Suffice it to say here that the computer model operated entirely on objective, scientific principles and used precise engineering detail about existing facilities.[6/] It assigned ATV channels based on the service principles described herein without regard to the identity (network affiliate, independent station or ETV outlet) of any given licensee. Attachment B contains a preliminary table of allotments/assignments that was produced using this highly sophisticated computer model. We stress that many of the assignments in the preliminary table will surely change once

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[4/] Broadcasters have outlined these goals in previous submissions. See e.g. Joint Broadcaster Comments, MM Docket No. 87-268, filed December 20, 1991 ("Joint Comments II") at 4-6.

[5/] Each of the undersigned supports the general approach outlined herein but, as contemplated by Section IV of this proposal, broadcasters may comment separately on particular aspects of the ATV allotment/assignment process, propose changes, or both.

[6/] Manual adjustments to the preliminary table were made in a small number of assignments because, in those anomalous cases, replication by population yielded a better ATV channel than replication by square miles. See Appendix A at p.5.

additional information is made available, but these changes are unlikely to cause substantial changes in coverage or interference. Even more assignments may change as improvements are suggested and adopted.

We ask the Commission to consider this submission and issue a further notice of proposed rulemaking that incorporates the Broadcasters' proposal, including the proposed mechanisms for evaluating and authorizing adjustments to the table both now and in the future. On November 30, 1994, a technical version of this proposal (Spectrum Study for Advanced Television Service--Summary and Update, PS-WP3Doc.308) was submitted to Working Party 3 of the FCC Advisory Committee on Advanced Television Systems ("ACATS"); both the ACATS technical subgroup and Working Party 3 approved the proposal's parameters and principles. This filing is being submitted to ACATS simultaneously herewith.

I. PURPOSE FOR SUBMITTING PROPOSAL NOW

Implementing ATV, with all its consumer benefits, will require an allotment/assignment plan capable of meeting the objectives stated above. Because even the creation of a table will take time -- it took five years (between 1948 and 1952) to create the current NTSC table -- industry and the Commission must continue to work together expeditiously to bring ATV to the public. In recognition of these facts, the Broadcasters already have labored seven years on

allotment/assignment issues, in support of similar efforts by the Commission's staff and ACATS to advance this process.

The Broadcasters have designed and funded a highly sophisticated and scientifically rigorous computer program that takes into account the selected ATV system's performance characteristics, applies certain allotment/assignment principles grounded in public policy goals (described in greater detail below), protects the public's existing NTSC service, and factors in terrain, propagation, and interference effects to allot and assign ATV channels in a single step.[7/] The Broadcasters have outlined the basic principles of their approach to the Commission many times and shared this software with the Commission's staff.

The Commission has praised the Broadcasters' basic approach in the past but expressed concern that "all licensees might not be satisfied with the allotments and assignments the plan would produce."[8/] However, that would be true of any plan -- especially one that arbitrarily disenfranchised broadcasters' current viewers. In the interest of eliciting full public participation and promoting maximum satisfaction, the time is now ripe for licensees and the public to examine

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[7/] The Commission is already acquainted with the essentials of Broadcasters' proposal. See Second Further Notice of Proposed Rulemaking, 7 FCC Rcd. 5376 (1992) at n. 17 ("Second Further Notice").

[8/] Second Further Notice at ¶ 14.

the Broadcasters' approach fully, so that adjustments may be made and expectations settled. That examination should take place both before the Commission and within ACATS.

For several reasons, we offer this proposal as a prologue to what promises to be an important debate. First, we recognize that the FCC cannot finalize a table until the new system's performance characteristics have been determined[9/] and that the Grand Alliance system will not be finally tested nor the results of ACATS' recommendations submitted to the Commission before next summer. However, postponing the arduous process of developing a satisfactory table will make it nearly impossible for the FCC to adopt the table of allotments/assignments and ATV system standards simultaneously, as it should.[10/] Fortunately, test results from ATV system and transmission subsystem testing to date have made it possible for the Broadcasters to submit a reasonable allotment/assignment proposal now that can be used

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9/ These performance characteristics, including ATV coverage and three kinds of interference (ATV to ATV, ATV to NTSC and NTSC to ATV), are highly relevant to how successful the table will be in optimizing available spectrum.

10/ If ATV is to have a reasonable chance of succeeding, it is highly desirable and perhaps imperative that the Commission adopt an allotment/assignment table at the same time as it establishes ATV standards. Otherwise, equipment manufacturers will be reluctant to produce ATV implementing equipment in volume (and at low prices) and program producers to create product in the new format. Broadcasters have long endorsed the simultaneous adoption of standards and assignments. See, e.g., Joint Comments at 2.

as a basis for further Commission rulemaking and industry and public discussion, refinement and improvement.

Second, discussions within the industry have revealed that, notwithstanding the widespread endorsement of the Broadcasters' principles, there are contrasting views on a number of secondary and tertiary issues related to the assignment process. We emphasize that this proposal, and particularly the attached table, is only a start, and that input from the Commission's staff, ACATS and others will no doubt refine and improve it. No computer model, no matter how sophisticated, can take into account all conditions at all locations that affect propagation. Specific and changing circumstances will justify the proposal's continuing adaptation both before and after a revised table is adopted. The process we propose for dealing with changes is discussed in greater detail in Section IV below.

To inform and accelerate the debate, we strongly believe it is necessary to submit a specific proposal now, so that when it comes time to adopt an allotment/assignment process and table, all of the issues will have been aired and all of the possible adjustments considered. These fundamental decisions about how to advance free television's transition to digital services using existing spectrum -- decisions that will set television's course for the next century -- are too important to be left for the last moment.

II. PREMISES AND ACHIEVEMENTS OF THE PROPOSED APPROACH

The Broadcasters start from the premise that any effective allotment/assignment plan must custom pair ATV channels with existing NTSC stations and must accommodate all existing NTSC stations, permittees and applicants so that the public's existing service can be upgraded, without loss, to the new digital technology. This pairing approach is derived (i) from the FCC's principle that its distribution of new ATV channels is meant to modernize the public's existing service and (ii) from the realities of an interference-limited and congested television spectrum that will have to accommodate twice as many channels during the transition to full digital television.

On the basis of this first premise, the Broadcasters here propose an allotment/assignment process that employs engineering tools of complexity and sophistication never before adapted for this purpose. The traditional go-no-go mileage separation rules applicable to NTSC stations have served the public well to date. But the daunting task of squeezing about 1700 new ATV stations into existing spectrum requires, and various new allocation tools permit, a much more tailored approach to the ATV allotment/assignment process. These tools custom match each channel available for ATV transmission with the most appropriate NTSC station, preserving today's service and in many cases substantially

expanding it, negatively affecting the fewest NTSC viewers and allowing the most ATV viewers to upgrade their NTSC service.[11/] To maximize channel utility, the allotment/assignment alogarithm underlying the table assumes that the new ATV channel will operate from the exact site of the NTSC station with which it is paired and will operate under certain power and height parameters, subject to subsequent adjustments as warranted.

The Broadcasters recognize that fluctuations in station ownership, facility configurations (including inability to collocate), and other factors affecting the desirability of particular channel assignments make it critical to provide for flexibility in the table both before and after it is adopted. For that reason, the Broadcasters' approach has room for adjustments to channel assignments, presumed sites and power and height parameters. As discussed further in Section IV, all proposed adjustments should be evaluated and authorized under objective, neutral, and universally applicable allotment/assignment principles. This will ensure that the public will receive the most effective television service.

[11/] Broadcasters have presented this technically-based pairing approach to the Commission a number of times. See, e.g., Joint Comments II at 4 and Joint Broadcaster Comments, MM Docket No. 87-268, filed November 16, 1992 ("Joint Comments IV") at 11-13.

The Broadcasters' second premise, discussed more fully below, is that viewer disenfranchisement through either new ATV interference to existing NTSC service or new ATV service areas that fail to replicate existing NTSC stations' service to the public should be avoided wherever possible. We believe that the Broadcasters' proposals would minimize such disenfranchisement.[12/]

A third premise, which we call maximization, is that a given licensee, particularly one with a smaller NTSC service area, should be able to expand its ATV coverage beyond the bounds of its current NTSC service area up to an area that is comparable to the largest service area in the same market, provided that the expansion causes no new interference to NTSC or ATV service. Thus, licensees would be allowed to increase power or height or both consistent with these maximization principles. It is expected that maximization will serve to lessen the current disparity between VHF and UHF channels and enable the smaller UHF stations in particular to compete more effectively with other ATV stations in their markets.[13/]

[12/] This principle has been discussed in Broadcasters' previous submissions. See, e.g., Joint Broadcaster Comments, MM Docket No. 87-268, filed July 17, 1992 ("Joint Comments III") at 6 and Joint Comments IV at 18.

[13/] See Joint Comments II at 4-6; Joint Comments III at 4-10; and Joint Comments IV at 14.

Finally, consistent with the Commission's decision to preserve non-commercial vacant allotments,[14/] the Broadcasters' approach sacrifices vacant non-commercial NTSC allotments to accommodate ATV channels only as a last resort.[15/] And even in those few cases where the vacant NTSC non-commercial allotments had to be deleted to accommodate new ATV service, the preliminary table provides new ATV channels for virtually all non-commercial allotments.[16/]

The Broadcasters' approach achieves remarkable results. The attached table provides that (i) all existing stations, permittees and pending applicants will receive ATV assignments; (ii) 97.5% of existing stations will have ATV coverage areas at least 95% as great as their existing coverage areas; (iii) 88% of stations will achieve at least 98% replication or better of their existing viewers; (iv) 91.7% of stations will achieve ATV coverage that exceeds their NTSC coverage; (v) 89% of the viewership of NTSC service will experience no new interference and the remaining 11% will be

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[14/] See Second Report and Order/Further Notice of Proposed Rule Making, 7 FCC Rcd. 3340 (1992) at ¶ 36 ("Second Report and Order"). The proposal uses vacant commercial NTSC allotments for ATV based on the assumption that they have remained fallow because there is no market demand for the service they could provide.

[15/] Broadcasters have long supported the retention of non-commercial vacant allotments. See, e.g., Joint Comments II at 9-10.

[16/] The one exception is in Ocala, Florida.

affected only slightly; and (vi) approximately two-thirds of the ATV stations will have the possibility of greatly expanding their service areas according to the maximization principle and many of these will be able to maximize up to the largest service area in the market.

Moreover, under the Broadcasters' approach, it is anticipated that, if and when there is a cross-over from NTSC to ATV transmission, almost all existing broadcasters who are assigned ATV channels will be able to maximize their service areas at a level of ATV to ATV interference that is well below existing NTSC interference levels. Indeed, in most cases maximization could be accomplished without increasing ATV interference.[17/]

III. PUBLIC POLICY GOALS EMBODIED IN PROPOSED APPROACH

Throughout this proceeding, the Commission has viewed ATV technology as a way to "'preserve and improve existing broadcast service'[;]"[18/] as the next generation of television, continuous with its broadcast past, rather than as a new service unto itself. The Commission's view that digital broadcasting will build on traditional broadcasting is supported by today's reality that broadcasters are making the

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17/ It is further anticipated that the interference characteristics of ATV will allow the great majority of broadcasters, as a technical matter only, to use their NTSC channels to transmit ATV signals in an all-ATV environment.

18/ Notice of Proposed Rule Making, 6 FCC Rcd. 7024 at ¶ 5, quoting Second Inquiry, 3 FCC Rcd. at 6537.

transition to digital technology in their selection of studio and other equipment. Consistent with this view, the Commission has sought to manage the transition to ATV services by preserving its perennial objective in allocating and assigning channels -- to deliver maximum television coverage with minimum interference using spectrum to full efficiency.[19/]

Thousands of complex computer runs and literally years of coverage and interference analyses, coordinated with a broad array of industry representatives and consistent with ACATS-endorsed principles, have convinced us that a site-specific pairing strategy based on the principles we have espoused for the past seven years is the best way to achieve the Commission's goals.[20/] While recognizing that our pairing strategy could stand revision, augmentation, and fine-tuning, the Broadcasters nonetheless believe that no other strategy addresses these goals in such an equitable and

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[19/] See Second Inquiry, 3 FCC Rcd. 6520, 6537 (1988). See also Sixth Report and Order on Television Assignments, 41 FCC 148 (1952), upheld in Logansport Broadcasting Corp. v. United States, 210 F.2d 24 (D.C. Cir. 1954) (channels should be distributed so as to achieve maximum television coverage with a minimum of interference); In re Review of the Technical Assignment Criteria for the AM Broadcast Service, MM Docket No. 87-267, 6 FCC Rcd. 6273 (1991) at ¶¶ 99-159 (migration of AM licensees into AM expansion band governed by goals of minimizing interference and maximizing service).

[20/] See Joint Comments, MM Docket No. 87-268, filed November 30, 1988 ("Joint Comments I"); Joint Comments II, supra; Joint Comments III, supra; and Joint Comments IV, supra. See also Petition for Notice of Inquiry, filed February 13, 1987.

efficient way, avoiding speculation, limiting controversy, and speeding the delivery of ATV services. What is more, no other strategy does so while preserving the continuity of the public's existing television service that the Commission and consumers so highly value and that is essential for the future health of ATV. In short, the Broadcasters' proposal rests on science that is both spectrum-smart and licensee-neutral[21/] and it allows for fine-tuning consistent with that science to improve the service that individual licensees can provide without compromising the efficiency and equity of the whole.

Spectrum Efficiency

This is a technically driven approach employing extremely accurate modeling technologies to yield a table that, like a well-packed trunk, best accommodates all users in the space available.[22/] The computer model does not know to which licensee (network affiliate, independent station or ETV outlet) it assigns which ATV channel. Instead, it assimilates local terrain, ATV system performance characteristics, and other factors affecting current NTSC service or interference and that may similarly affect future ATV service. It also tabulates actual population served, not just square miles,

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[21/] The first-come-first-served/random pairing/lottery approach might arguably be licensee-neutral but is not spectrum-smart. Other conceivable approaches would be neither licensee-neutral nor spectrum-smart.

[22/] For further discussion, see Joint Comments III at 4-7.

assumes exact collocation to avoid adjacent-channel interference problems, and sculpts replicated (and potentially maximized) coverage areas using assumed facility parameters. It then selects the channel that delivers the best service according to the principles we espouse.

In addition, the approach makes the most efficient use of the entire UHF and VHF bands, pairing ATV channels, whether UHF or VHF, with existing NTSC stations where appropriate to achieve maximization and replication throughout. The use of both UHF and VHF bands is imperative for several reasons.

First, by distributing the approximately 1700 new ATV assignments among all 67 channels currently allocated to television broadcasting (including VHF), rather than 55 (excluding VHF), it will be possible to provide more new service to the public at the cost of less interference to both existing NTSC and new ATV service. In the major markets where congestion is most severe, it is not possible in all cases to achieve ATV service areas as large as NTSC service areas even <u>with</u> the use of both VHF and UHF bands. The failure to use VHF channels would exaggerate this shortfall to the public's detriment. The above goals -- accommodating all existing stations, at least replicating the public's existing service, maximizing new ATV service particularly for smaller NTSC stations, and minimizing interference to the public's existing

and future service -- all dictate the use of both UHF and VHF channels.

Second, the Commission acknowledges that exclusive reliance on the UHF band is impossible during the transition to ATV. Thus a planned phase-out of VHF channels would penalize those licensees initially assigned the few VHF channels because they would have to make the conversion to ATV twice, first on VHF and then on UHF.[23/]

Similar regard for spectrum efficiency guided the Commission in adopting an allotment plan for the expanded AM Band.[24/] In that proceeding, the Commission had to select from nearly 5000 existing licensees fewer than 200 to migrate to an expanded AM Band. With the goal of spectrum conservation in mind, it sought to "strictly manage migration to maximize the interference and congestion reduction benefits of each allotment awarded."[25/] Thus, the FCC favored a technically driven selection plan that optimized spectrum use and replicated existing coverage over the haphazard distribution

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23/ See Joint Comments IV at 19-26 for a more detailed discussion of the benefits of using VHF spectrum and the drawbacks of UHF-packing.

24/ See In re Review of the Technical Assignment Criteria for the AM Broadcast Service, MM Docket No. 87-267, 6 FCC Rcd. 6273 (1991), recon. granted in part and denied in part, 8 FCC Rcd. 3250 (1993).

25/ Id. at ¶ 110.

of spectrum based solely on licensee preference or chance.[26/]

Here, too, the availability of channels for the next generation of television will be very limited and critically dependent on the precision with which they are assigned to existing licensees. An assignment of channels based on sound, neutral engineering principles is crucial if spectrum is to be distributed efficiently[27/]

Administrative Efficiency

The Broadcasters' approach will use money as well as spectrum more efficiently by virtue of its principles, methodology, and adjustment mechanisms. The lion's share of the industry, including the networks, affiliated stations, independents, and public television organizations, has already backed the principles underlying the Broadcasters' proposal.[28/] Although no single table will satisfy every

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[26/] See also In re Fostering Expanded Use of UHF Television Channels, Fifth Report and Memorandum Opinion and Order, 6 RR 2d 1643, 1646, 1680-86 (1966) (relying on computer program developed in light of 20 years experience to assign channels based on underlying principle that each assignment should have the least possible impact on the remaining unassigned channels).

[27/] The Commission's ATV Advisory Committee has recommended a site-specific pairing plan based on the extensive analysis performed by its various working parties on the best way to implement ATV in the limited spectrum available. See Fifth Interim Report of the FCC Advisory Committee on ATV at 12 (March 24, 1992).

[28/] In addition, the vast majority of broadcast organizations support a site-specific pairing approach. See Second Further Notice at ¶ 32; Joint Comments IV, filed on behalf of 105 broadcast organizations, at 5 n.4.

station, a table based on widely accepted objective principles promises to satisfy more stations more fully and to meet the needs of their viewers.

The Commission has already wisely recognized that the adoption of a site-specific allotment plan, by promoting the collocation of NTSC and ATV facilities, will make the introduction of ATV quicker and less expensive.[29/] This is a good start, but the Commission should do more than consider transmission sites in allotting channels to communities. It also should use these sites in assigning ATV channels to particular NTSC stations. A sensitivity to existing stations' facilities -- site location, power, height, and actual coverage pattern -- in the assignment process, as in the allotment process, will increase coverage further while preserving the NTSC service that viewers expect.[30/] Furthermore, by pairing channels in the first instance, the Commission would be spared the unnecessary step of public notice and comment on a separate channel allotment phase as well as the complications of distributing unassigned channels

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[29/] See Second Further Notice at ¶ 35.

[30/] See Joint Comments IV at 11 ("Given the sometimes significant geographic separations between existing stations in the same market, it simply makes no sense to optimize channel coverage based on an existing site and then not assign that channel to a station on that site.").

by lottery, first-come-first-serve, or other administratively intensive methods.[31/]

The Broadcasters' proposed adjustment mechanisms will further advance the cause of administrative efficiency by providing the flexibility to accommodate changing circumstances with the latest, most reliable allotment/assignment techniques. Thus, both before and after a table is adopted, these mechanisms will serve to minimize disputes and streamline a potentially cumbersome administrative process.[32/]

With these considerations in mind, the Commission could eliminate many of the transaction costs associated with the regulatory challenges and post-allotment maneuvering that would be inevitable if the assignment of ATV channels were left to chance or some other less scientific or objective method.

Enfranchisement

It is tempting in the excitement of implementing an improved service to underestimate the value of the old. If ATV is to fulfill its promise, that temptation must be avoided. The replication/maximization strategy espoused here

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[31/] See Joint Comments II at 3-7 and Joint Comments III at 11-14.

[32/] The Broadcasters' proposed adjustment process would do away with petitions to deny and appellate review in many cases of channel reassignments.

will allow television to enter a digital era without disrupting existing NTSC service.[33/] The software program the Broadcasters have developed is able to custom fit ATV channels to the existing channels for which they are best suited, thereby producing a table that both replicates and optimizes service based on the public's existing NTSC service and largely preserving that service from new ATV-generated interference.

The benefits of maintaining unbroken NTSC service to existing viewers are substantial and have long been recognized by the Commission and the courts.[34/] Free over-the-air broadcasting serves 98% of Americans today,[35/] more than are served by telephones or indoor plumbing. For many years to come, NTSC service will be the principal source of broadcast television service to most viewers and will generate the

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33/ The Commission appears committed to the same goal. In fact, "[t]he reason [it] is awarding broadcasters a second channel is to permit them to move to an improved technology without service disruption." Second Further Notice at ¶ 11.

34/ See FCC v. National Citizens Committee For Broadcasting, 436 U.S. 775, 805 (1978)("preserving continuity of meritorious service furthers the public interest, both in its direct consequence of bringing proved broadcast service to the public, and in its indirect consequence of rewarding - and avoiding losses to - licensees who have invested the money and effort necessary to produce quality performance").

35/ See Second Report and Order at ¶ 4 ("[B]ecause over-the-air broadcasting reaches more than 98% of U.S. households, an ATV terrestrial broadcast system is the medium most likely to bring this technological advance to virtually all Americans.").